

Euschistus *Dallas.*

E. fissilis *Uhl.* Mosholu, N. Y., May 31, July 19 and 26, August 23. Forest Park, June 14.

E. tristigmus *Say.* Mosholu, N. Y., July 26, August 23, September 4. Staten Island, August 16.

E. variolarius *Pal. B.* Mosholu, N. Y., June 22 and 28, July 12 and 19, August 7 and 30, September 9. Forest Park, L. I., June 14. Van Cortlandt Park, New York, September 13.

Cænus *Dall.*

C. delius *Say.* Mosholu, N. Y., July 19 and 26, August 12, 23 and 30, October 18. Very abundant in clover patches in meadow.

Pentatoma *Oliv.*

P. senilis *Say.* Staten Island.

Hymenarcys *Am. et Serv.*

H. nervosa *Say.* Staten Island, N. Y., August 22.

Trichopepla *Stål.*

T. semivittata *Say.* Mosholu, N. Y., July 19 and 26, August 7, September 9. Very abundant in low grasses.

Peribalus *Muls.*

P. limbolarius *Stål.* Mosholu, August 9.

Thyanta *Stål.*

T. custator *Fab.* Mosholu, N. Y., June 28, July 19 and 26, August 23, September 4.

Nezara *Am. et Serv.*

N. pennsylvanica *DeG.* Lakehurst, N. J., May 27.

N. hilaris *Say.* Dunellen, N. J.

A SYNOPSIS OF THE NORTH AMERICAN SPECIES OF JAPYX.

BY MYRON H. SWENK.

Since Haliday in 1864 characterized the genus *Japyx* from specimens of *J. solifugus*, over thirty additional species have been described from different parts of the world. Several of these are in all probability synonyms. Up to the present time six well-marked species have been described from the United States and Mexico, and these, together with an undescribed species from Nebraska, may be

separated by the following table based on characters of forceps dentation.

Right arm of forceps with about twenty small, blunt teeth, all of practically the same size and in a single continuous row; left arm with numerous small, blunt teeth, and a single large tooth midway between the center and the base of the arm.

Japyx hubbardi *Cook* (Chiricahua Mts., Arizona).

Right arm of forceps with one or two teeth decidedly larger than the others (1)

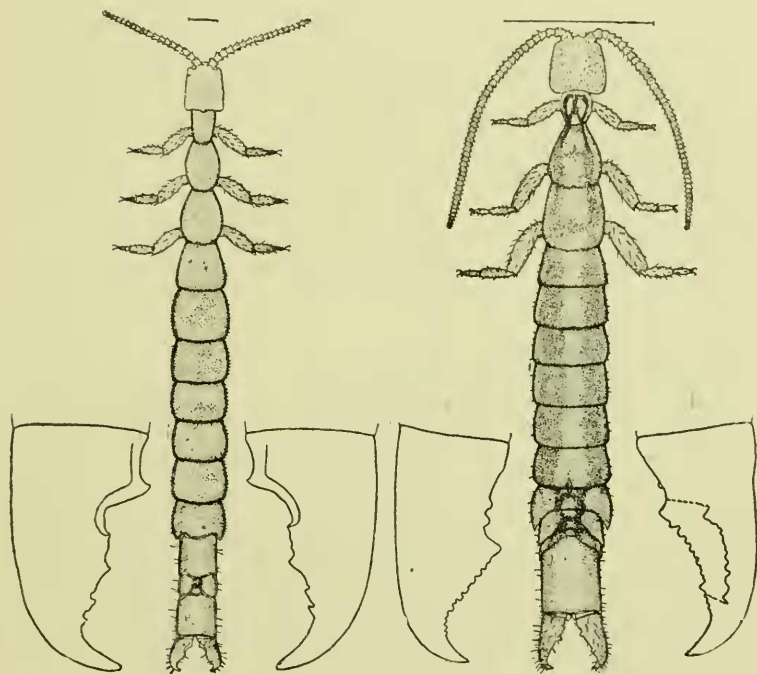
1. Center of inner margin of right arm with a single tooth larger than any of the other teeth (2).
 1. Largest tooth or teeth of right arm not in the center of the margin, but placed either proximally or distally from the center (5).
2. Right arm with a smooth, even sinus proximally from the broad central tooth, as broad as the base of the tooth itself, and abruptly interrupted by another tooth, smaller but also broad based and blunt; a row of six subequal denticles distally from the central tooth, and a superior row of one or two small denticles proximally from it; left arm with its largest tooth placed distally from the center, and proximally from it a superior and an inferior row, each containing about six blunt denticles **Japyx bidens** *Cook* (Alabama).
2. Right arm without a conspicuous sinus proximally from the central tooth; this in no case as broad as the base of the tooth itself, and not abruptly interrupted by another blunt tooth (3).
 3. Right arm with the proximal margin from the large central tooth having but one or two rounded denticles, the distal margin with about a dozen blunt denticles; left arm with a large tooth one-third the length of the arm from the base, midway between this tooth and the apex another smaller tooth, and between these teeth a double row of variously sized denticles, each row containing about eight. **Japyx saussurii** *Humbert* (Orizaba and Cordova, Mexico).
 3. Right arm with four or more denticles on the proximal margin from the central tooth (4).
4. Left arm very slender with about twenty distinct denticles arranged in two subequal rows proximally from the largest tooth, which is distad from the center; distally from this tooth the margin is concave and nearly smooth; right arm without a superior row, but with a straight, inferior row of four or five rather large, subequal denticles proximally from the large central tooth, and distally from it a concave, finely denticulate margin. **Japyx multidens** *Cook* (Alabama).
4. Left arm moderately stout with only seven or eight small denticles proximally from the largest tooth, which is distad from the center; distally from this tooth the margin is ^{concave}convex and minutely denticulate; right arm with the proximal margin from the central tooth convex with four small denticles, the distal margin concave with numerous denticles. **Japyx subterraneus** *Packard* (Kentucky; District of Columbia).
5. Right arm with two large teeth, one just before the other just after the center of the margin; proximally from the first tooth the margin is convex with five denticles, between the two teeth straight with six, and distally from

the second tooth concave with many ; left arm with a large tooth one third its length from the base, proximally from which are three smaller denticles and distally from it nine feebly marked denticles.

Japyx americanus *MacGillivray* (West-central Washington).

5. Right arm with a single broad based, sharp tooth about one fourth the length of the arm from the base, distally from which is a large abruptly inwardly deflexed sinus, interrupted by four smaller, widely separated denticles ; left arm similar to right

Japyx minimus, sp. nov.
(Southeastern Nebraska).



Japyx minimus.

Japyx saussuri

With enlarged dorsal view of their forceps.

Japyx minimus, sp. nov.

Head quadrangular, transverse, about one fourth longer than broad ; antennæ short, eighteen-jointed, the segments subcylindrical, and gradually decreasing in size apically. Prothorax about two thirds as broad as the head, longer than broad, and truncate in front. Abdomen with first seven segments rounded at the sides, the second slightly larger than the others, of which the seventh is slightly the smallest. All are without emargination. The last three segments have straight, almost parallel sides, the eighth with the anterior end concave, the posterior end convex and articulating with the concave anterior end of the ninth segment ; this one in turn articulates

with the tenth which has the anterior end convex with a rather abrupt central protuberance, and the posterior end subtruncate. Forceps shorter than the last or tenth segment, which is nearly as large as the eighth and ninth together, the ninth being about one half the size of the eighth. Forceps and last segment of the abdomen light brown, the rest of the insect whitish. The whole insect covered sparsely with hair-like bristles, these densest on the forceps. Abdominal appendages present, but minute.

Right arm of forceps with a large, broad based, sharply pointed and slightly backward inclining tooth, placed on the lower inner margin and distant from the base about one fourth the length of the arm. From this tooth to the base the arm is slightly concave, but about equal in thickness throughout; distally from the tooth the margin is very abruptly deflexed inwardly (sometimes almost at a right angle), for about one third the width of the arm; at the end of this smooth sinus is a denticule, generally broad and blunt, and some distance from this another similar one and between these two are often traces of two very blunt tubercles; then the margin is again deflexed, somewhat sharply and obliquely, this interrupted by two equal, saw-tooth-like denticules, always distinct and about equidistant from each other and the second denticule. No superior row of teeth. The left arm is very similar to the right and presents no constant difference either in size, strength or dentation.

Length without antennæ 3.85 mm.; length of antennæ .73 mm.; length of abdomen 2.55 mm.; length of last abdominal segment and forceps .43 mm.; length of forceps .17 mm.

Habitat: Southeastern Nebraska.

Four specimens of this little *Japyx* are in the collection of the University of Nebraska taken as follows: Malcolm, Nebr., May 4, 1901, one specimen; Crab Orchard, Nebr., May 7, 1901, one specimen; Adams, Nebr., May 11, 1901, two specimens. In all cases they were taken from among the roots of wheat growing in damp soil, and are probably quite common when carefully looked for. It is very different from any described species and may easily be distinguished by the combination of very small size, few joints in the antennæ, the head longer than broad, and the shape of the last three abdominal segments, as well as by the similarity of the two arms and the peculiar dentation of the forceps.

COLOR-PREFERENCE IN INSECTS.

BY A. S. PACKARD.

In my "Text Book of Entomology" I have briefly stated from what sources I had access to, the little that was known up to 1898 as to the color-preferences of insects. It appears that few observations